The claimed invention is:

1. A catalyst composition comprising a complex of catalytic oxides comprising potassium, cesium, cerium, chromium, cobalt, nickel, iron, bismuth, and molybdenum, wherein the relative ratios of these elements are represented by the following general formula

$$A_a K_b Cs_c Ce_d Cr_e Co_f Ni_g X_h Fe_i Bi_j Mo_{12} O_x$$

wherein A is Rb, Na, Li, Tl, or mixtures thereof,

X is P, Sb, Te, B, Ge, W, Ca, Mg, a rare earth element, or mixtures thereof,

a is about 0 to about 1,

b is about 0.01 to about 1,

c is about 0.01 to about 1,

d is about 0.01 to about 3,

e is about 0.01 to about 2,

f is about 0.01 to about 10,

g is about 0.1 to about 10,

h is about 0 to about 4,

i is about 0.1 to about 4,

j is about 0.05 to about 4,

x is a number determined by the valence requirements of the other elements present,

and wherein the catalyst is substantially free of manganese and zinc.

2. The catalyst composition of claim 1, wherein the catalyst comprises phosphorus.

3. The catalyst composition of claim 1, wherein the catalyst comprises magnesium.

4. The catalyst composition of claim 1, wherein the catalyst is substantially free of magnesium.

5. The catalyst composition of claim 1, wherein the catalyst comprises rubidium.

6. The catalyst composition of claim 1, wherein the catalyst comprises lithium.

7. The catalyst composition of claim 1, wherein f + g is about 4 to about 10.

8. The catalyst composition of claim 1, wherein the catalyst composition comprises a support selected from the group consisting of silica, alumina, zirconium, titania, or mixtures thereof.

9. The catalyst composition of claim 8, wherein the support comprises between 30 and 70 weight percent of the catalyst.

10. The catalyst composition of claim 1, wherein the catalyst composition comprises silica having an average colloidal particle size in between about 8 nm and about 100 nm.

11. A catalyst composition comprising a complex of catalytic oxides comprising potassium, cesium, cerium, chromium, cobalt, nickel, iron, bismuth, and molybdenum, wherein the relative ratios of these elements are represented by the following general formula

$$A_a\ Li_{a'}\ K_b\ Cs_c\ Ce_d\ Cr_e\ Co_f\ Ni_g\ X_h\ Fe_i\ Bi_j\ Mo_{12}\ O_x$$

wherein A is Rb, Na, Tl, or mixtures thereof,

X is P, Sb, Te, B, Ge, W, Ca, Mg, a rare earth element, or mixtures thereof,

a is about 0 to about 1,

a' is about 0.01 to about 1,

b is about 0.01 to about 1,

c is about 0.01 to about 1,

d is about 0.01 to about 3,

e is about 0.01 to about 2,

f is about 0.01 to about 10,

g is about 0.1 to about 10,

h is about 0 to about 4,

i is about 0.1 to about 4,

j is about 0.05 to about 4,

x is a number determined by the valence requirements of the other elements present,

and wherein the catalyst is substantially free of manganese and zinc.

12. The catalyst composition of claim 11, wherein f + g is about 4 to about 10.

13. A process for the conversion of an olefin selected from the group consisting of propylene, isobutylene or mixtures thereof, to acrylonitrile, methacrylonitrile, and mixtures thereof, respectively, by reacting in the vapor phase at an elevated temperature and pressure said olefin with a molecular oxygen containing gas and ammonia in the presence of a catalyst comprising a complex of catalytic oxides comprising potassium, cesium, cerium, chromium,

cobalt, nickel, iron, bismuth, molybdenum, wherein the relative ratios of these elements are represented by the following general formula

$$A_a K_b Cs_c Ce_d Cr_e Co_f Ni_g X_h Fe_i Bi_j Mo_{12} O_x$$

wherein A is Rb, Na, Li, Tl, or mixtures thereof,

X is P, Sb, Te, B, Ge, W, Ca, Mg, a rare earth element, or mixtures thereof,

a is about 0 to about 1,

b is about 0.01 to about 1,

c is about 0.01 to about 1,

d is about 0.01 to about 3,

e is about 0.01 to about 2,

f is about 0.01 to about 10,

g is about 0.1 to about 10,

h is about 0 to about 4,

i is about 0.1 to about 4,

j is about 0.05 to about 4,

x is a number determined by the valence requirements of the other elements present,

and wherein the catalyst is substantially free of manganese and zinc.

14. The process of claim 13, wherein the catalyst comprises phosphorus.

15. The process of claim 13, wherein the catalyst comprises magnesium.

16. The process of claim 13, wherein the catalyst comprises rubidium.

17. The process of claim 13, wherein the catalyst comprises lithium.

18. The catalyst composition of claim 13, wherein f + g is about 4 to about 10.

19. The process of claim 13, wherein the catalyst composition comprises a support selected from the group consisting of silica, alumina, zirconium, titania, or mixtures thereof.

20. The process of claim 19, wherein the support comprises between 30 and 70 weight percent of the catalyst.

21. The process of claim 13, wherein the catalyst composition comprises silica having an average colloidal particle size in between about 8 nm and about 100 nm.